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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,507	06/30/2000	Salvador Palanca	042390.P8918	9545

7590

05/03/2002

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EXAMINER

THAI, TUAN V

ART UNIT

PAPER NUMBER

2186

DATE MAILED: 05/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/608,507	Applicant(s) PALANCA ET AL. <i>cd</i>	
	Examiner Tuan V. Thai	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 17-21 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____                                    |

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**Part III DETAILED ACTION**

***Specification***

1. Claims 1-16 are presented for examination. Claims 17-21 are subjected to the restriction requirement, and being withdrawn from further consideration.
2. Applicant is reminded of the duty to fully disclose information under 37 CFR 1.56.

**NOTIFICATION OF OBJECTION AND/OR REJECTIONS**

***Election of Species/Restriction***

3. Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I. Claims 1-16 drawn to a method of dynamically partitioning a cache array based upon requests for memory from an integrated device having plurality of processors, classified under class 711 subclass 129.

Group II. Claims 17-21, drawn to a method of converting one type of cache to the other types, specifically N-way associative cache into a direct mapped cache classified in class 711 subclass 118.

The inventions are distinct, each from the other for the following reasons:

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The invention of groups I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, the invention of group I has separate utility such as cache partitioning, and is not limited for use with the different type of cache conversion of group II.

Similarly, the cache conversion of group II can be used as conversion of cache in different network environment and is not restricted for use with the dynamically cache partition of group I. See M.P.E.P. § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and recognized divergent subject matter, and because the search required for one group is not coextensive with the search required for the other groups, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Sanjeet K. Dutta (Reg. No. 46,125) on April 23, 2002; a provisional election was made without traverse to prosecute the invention of group I, claims 1-16. Claims 17-21 are therefore withdrawn from further consideration by the Examiner.

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***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-16 are rejected under 35 U.S.C. § 102(b) as being anticipated by Mattson (USPN: 5,717,893).

As per claims 1 and 7, Mattson teaches the invention as claimed including an apparatus and method for dynamically partitioning a cache array based upon requests for memory from an integrated device having plurality of processors (e.g. see abstract, column 3, line 66 bridging column 4, line 51; column 8, lines 14 et seq.);

As per claims 2 and 3, subdividing one or more ways/sets within the cache array (e.g. see column 3, lines 14 et seq., column 3, line 66 bridging column 4, line 51; column 8, lines 14 et seq.);

As per claim 4, using a single least recently used array to replace ways (e.g. see column 5, lines 28 et seq.);

As per claim 5, the pseudo LRU algorithm update based on an entry hit is taught by Mattson since single LRU-List is used for management and control of a single blocksize cache block (e.g. see column 5, lines 31 et seq.; column 8, lines 31 et seq.);

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As per claim 6, the further limitation of partitioning the cache array into a direct-mapped is embedded in Mattson and being taught to the extent that it is claimed since Mattson discloses multiple prior arts, that are incorporated by references which discloses that there is only one possible location for each data entry (e.g. see column 2, lines 15 et seq.);

As per claim 8, an integrated device having a plurality of processors connected to the cache memory array (e.g. see figure 1);

As per claim 9, a main memory device connected to the cache memory array (e.g. see figure 3);

As per claim 10, plurality of processors having a graphics processor and a central processor is taught to the extent that it is being claimed (e.g. see figure 1, column 21, lines 20 et seq.);

### ***Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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8. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mattson (USPN: 5,717,893).

As per claims 11-16; Mattson disclose the invention as claimed, detailed above with respect to claims 1-10; Mattson however does not particularly disclose a computer-readable medium of instructions to be implemented on a computer as being claimed in claims 11-16. However, one of ordinary skill in the art would have recognized that computer readable medium (i.e., floppy, cd-rom, etc.) carrying computer-executable instructions for implementing a method, because it would facilitate the transporting and installing of the method on other systems, is generally well-known in the art. For example, a copy of the Microsoft Windows operating system can be found on a cd-rom from which Windows can be installed onto other systems, which is a lot easier than running a long cable or hand typing the software onto another system. The examiner takes Official Notice of this teaching. Therefore, it would have been obvious to put Mattson's program on a computer readable medium, because it would facilitate the transporting, installing and implementing of Mattson's program on other systems.

#### *Conclusion*

9. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Washington, D.C. 20231

or faxed to:

*After-final* (703) 746-7238

*Official* (703) 746-7239

*Non-Official/Draft* (703) 746-7240

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan V. Thai whose telephone number is 703-305-3842.

The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays or e-mailed at *tuan.thai@uspto.gov*;

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Matthew M. Kim can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

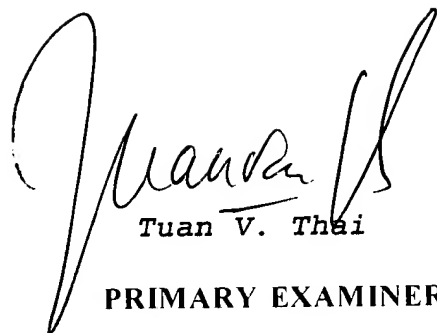


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TVT/April 23, 2002

A handwritten signature in black ink, appearing to read 'Tuan V. Thai', is written over a printed name.

Tuan V. Thai

PRIMARY EXAMINER

**Group 2100**